

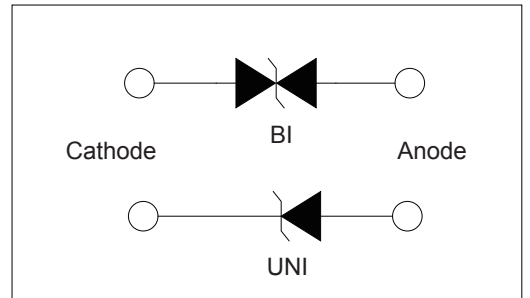
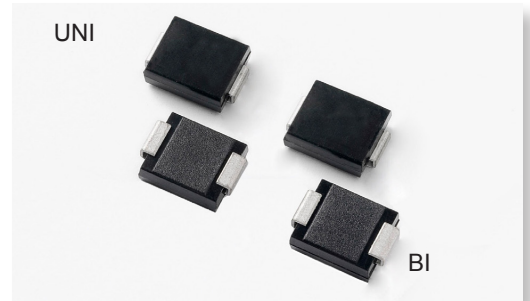
Transient Voltage Suppressors

1.5SMC Series

Transient Voltage Suppressors - 1.5SMC Series

Features

1. Halogen-free
2. Rohs compliant
3. Typical maximum temperature coefficient
4. $\Delta V_{BR} = 0.1\% \times V_{BR@25^{\circ}C} \times \Delta T$
5. Glass passivated Chip junction in DO-214AB package
6. 1500W peak pulse capability at 10x1000µs waveform, repetition rate (duty cycles):0.01%
7. Fast response time:typically less than 1.0ps from 0 Volts to BV min
8. Excellent clamping capability
9. Low incremental surge resistance
10. Typical IR less than 5µA above 12V
11. High temperature soldering guaranteed: 260°C/40 seconds / 0.375",
12. (9.5mm) lead length, 5lbs., (2.3kg) tension
13. Plastic package has underwriters laboratory flammability classification 94v-0



Applications

TVS devices are ideal for the protection of I/O interfaces,VCC bus and other vulnerable circuits used in telecom, computer, industrial and consumer electronic applications.

Mechanical Characteristics

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation at TA=25°C by 10x1000µs waveform (Fig.1)(Note 1), (Note 2)	P_{PPM}	1500	Watts
Power Dissipation on infinite heat sink at TA=50°C	P_D	6.5	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	200	Amps
Maximum Instantaneous Forward Voltage at 25A for Unidirectional only (Note 4)	V_F	3.5/5.0	V
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55°C to 150°C	°C
Typical Thermal Resistance Junction to Lead	R_{WJL}	15	°C/W
Typical Thermal Resistance Junction to Ambient	R_{WA}	75	°C/W

Notes:

1. Non-repetitive current pulse , per Fig. 3 and derated above TA = 25°C per Fig. 2.
2. Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 perminute maximum.
3. $V_F < 3.5V$ for devices of $V_{BR} < 200V$ and $V_F < 5.0V$ for devices of $V_{BR} > 201V$.

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Electrical Characteristics

Type Number		Reverse Stand-Off Voltage V _{RWM} (V)	Breakdown Voltage@I _T		Test Current I _T (mA)	Maximum Clamping Voltage@I _{pp} V _C (V)	Peak Pulse Current I _{PP} (A)	Reverse Leakage @V _{RWM} I _R (μA)
(UNI)	(BI)		V _{BR} MIN.(V)	V _{BR} MAX.(V)				
1.5SMC6.8A	1.5SMC6.8CA	5.80	6.40	7.25	10	9.2	163.0	800
1.5SMC7.5A	1.5SMC7.5CA	6.40	7.22	8.30	10	10.3	145.7	800
1.5SMC8.2A	1.5SMC8.2CA	7.02	7.78	8.95	10	12.0	125.0	200
1.5SMC9.1A	1.5SMC9.1CA	7.78	8.33	9.58	1	12.9	116.3	100
1.5SMC10A	1.5SMC10CA	8.55	9.44	10.82	1	13.6	110.3	50
1.5SMC11A	1.5SMC11CA	9.40	10.00	11.50	1	18.2	82.5	5
1.5SMC12A	1.5SMC12CA	10.20	11.10	12.80	1	19.9	75.4	5
1.5SMC13A	1.5SMC13CA	11.10	12.20	14.00	1	21.5	69.8	5
1.5SMC15A	1.5SMC15CA	12.80	14.40	16.50	1	24.4	61.5	5
1.5SMC16A	1.5SMC16CA	13.60	15.60	17.90	1	26.0	57.7	5
1.5SMC18A	1.5SMC18CA	15.30	16.70	19.20	1	29.2	51.4	5
1.5SMC20A	1.5SMC20CA	17.10	18.90	21.70	1	32.4	46.3	5
1.5SMC22A	1.5SMC22CA	18.80	20.00	23.30	1	35.5	42.3	5
1.5SMC24A	1.5SMC24CA	20.50	22.20	25.50	1	38.9	38.6	5
1.5SMC27A	1.5SMC27CA	23.10	24.40	28.00	1	42.1	35.7	5
1.5SMC30A	1.5SMC30CA	25.60	28.90	33.20	1	48.4	31.0	5
1.5SMC33A	1.5SMC33CA	28.20	31.10	35.80	1	53.3	28.2	5
1.5SMC36A	1.5SMC36CA	20.80	33.30	38.30	1	58.1	25.9	5
1.5SMC39A	1.5SMC39CA	33.30	36.70	42.20	1	64.5	23.3	5
1.5SMC43A	1.5SMC43CA	36.80	40.00	46.00	1	69.4	21.7	5
1.5SMC47A	1.5SMC47CA	40.20	44.40	51.10	1	72.7	20.6	5
1.5SMC51A	1.5SMC51CA	43.60	47.80	54.90	1	82.4	18.2	5
1.5SMC56A	1.5SMC56CA	47.80	50.00	57.50	1	87.1	17.3	5
1.5SMC62A	1.5SMC62CA	53.00	56.70	65.20	1	96.8	15.5	5
1.5SMC68A	1.5SMC68CA	58.10	64.40	74.10	1	103.0	14.6	5
1.5SMC75A	1.5SMC75CA	64.10	71.10	81.80	1	121.0	12.4	5
1.5SMC82A	1.5SMC82CA	70.10	77.80	89.50	1	137.0	11.0	5
1.5SMC91A	1.5SMC91CA	77.80	86.70	99.70	1	146.0	10.3	5
1.5SMC100A	1.5SMC100CA	85.50	94.40	108.20	1	162.0	9.3	5
1.5SMC110A	1.5SMC110CA	94.00	100.00	115.50	1	177.0	8.5	5
1.5SMC120A	1.5SMC120CA	102.00	111.00	128.00	1	193.0	7.8	5
1.5SMC130A	1.5SMC130CA	111.00	122.00	140.50	1	209.0	7.2	5
1.5SMC150A	1.5SMC150CA	128.00	144.00	165.50	1	243.0	6.2	5
1.5SMC180A	1.5SMC180CA	154.00	167.00	192.60	1	292.0	5.1	5
1.5SMC200A	1.5SMC200CA	171.00	189.00	217.50	1	324.0	4.6	5
1.5SMC220A	1.5SMC220CA	185.00	209.00	243.20	1	356.0	4.3	5
1.5SMC250A	1.5SMC250CA	214.00	242.00	272.00	1	405.0	3.7	5

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Ratings and Characteristic Curves

Figure 1 - Peak Pulse Power Rating

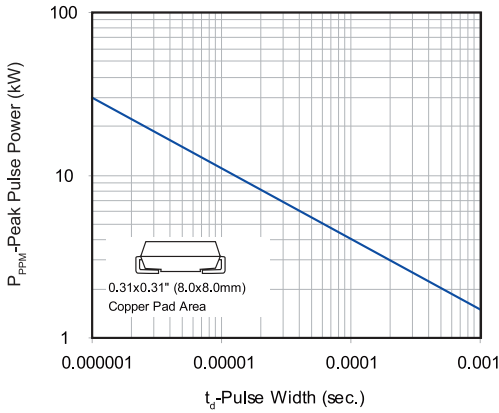


Figure 2 - Pulse Derating Curve

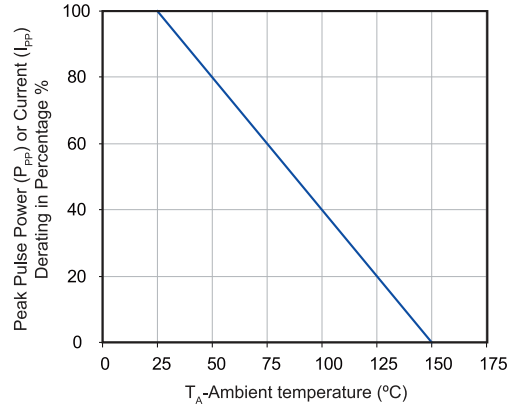


Figure 3 - Pulse Waveform

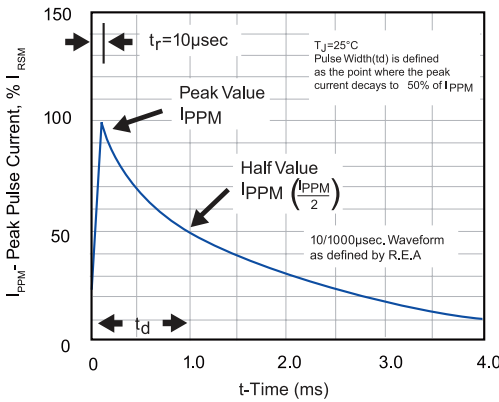


Figure 4 - Typical Junction Capacitance

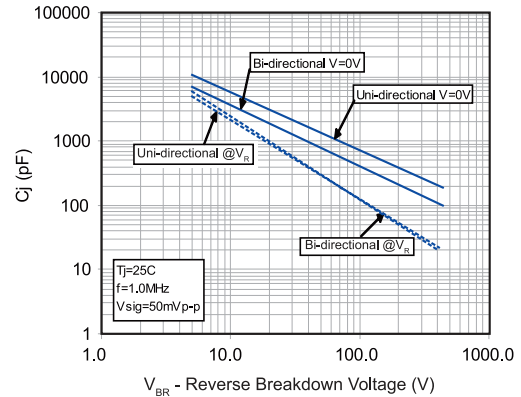


Figure 5 - Steady State Power Derating Curve

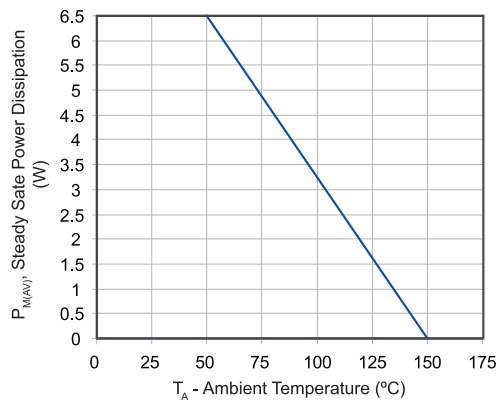
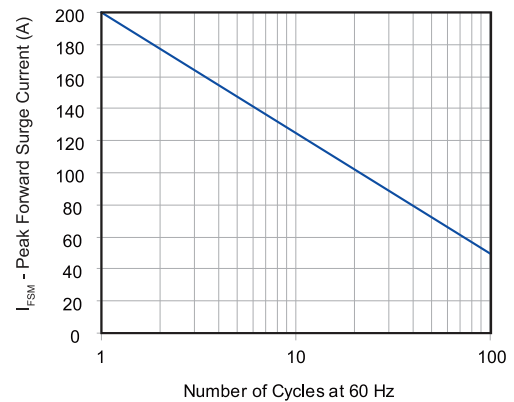


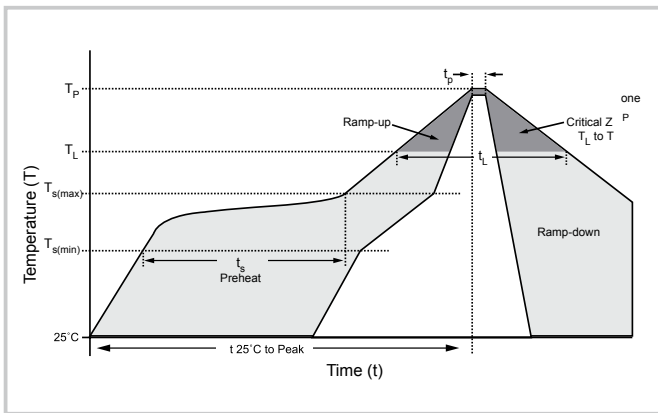
Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only



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Soldering Parameters

	Reflow Condition	Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60-180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (t_s)	60-150 seconds
Peak Temperature (T_p)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20-40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes Max.
Do not exceed		280°C



Physical Specifications

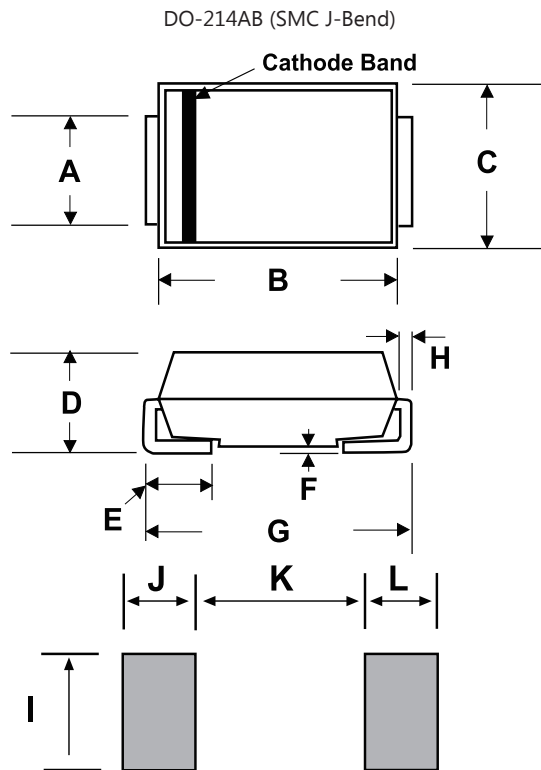
Weight	0.007 ounce, 0.21 grams
Case	JEDEC DO214AA. Molded plastic body over glass passivated junction
Polarity	Color band denotes cathode except Bidirectional.
Termination	Matte Tin-plated leads, Solderable per JESD22-B102D

Environmental Specifications

Temperature Cycle	JESD22-A104
Pressure Cooker	JESD 22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

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Dimensions



Unit:mm

DIM	Inches		Millimeters	
	Min	Max	Min	Max
A	0.114	0.126	2.900	3.200
B	0.260	0.280	6.600	7.110
C	0.220	0.245	5.590	6.220
D	0.079	0.103	2.060	2.620
E	0.030	0.060	0.760	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.750	8.130
H	0.006	0.012	0.152	0.305
I	0.129	-	3.300	-
J	0.094	-	2.400	-
K	-	0.165	-	4.200
L	0.094	-	2.400	-

Warehouse Storage Conditions of Products

- Storage Conditions:
 1. Storage Temperature: -10°C~+40°C
 2. Relative Humidity: ≤75%RH
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year

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